



Workshop on Flexible Resource Adequacy and Capacity Requirements



R.14-10-010

April 5, 2016

California Public Utilities Commission





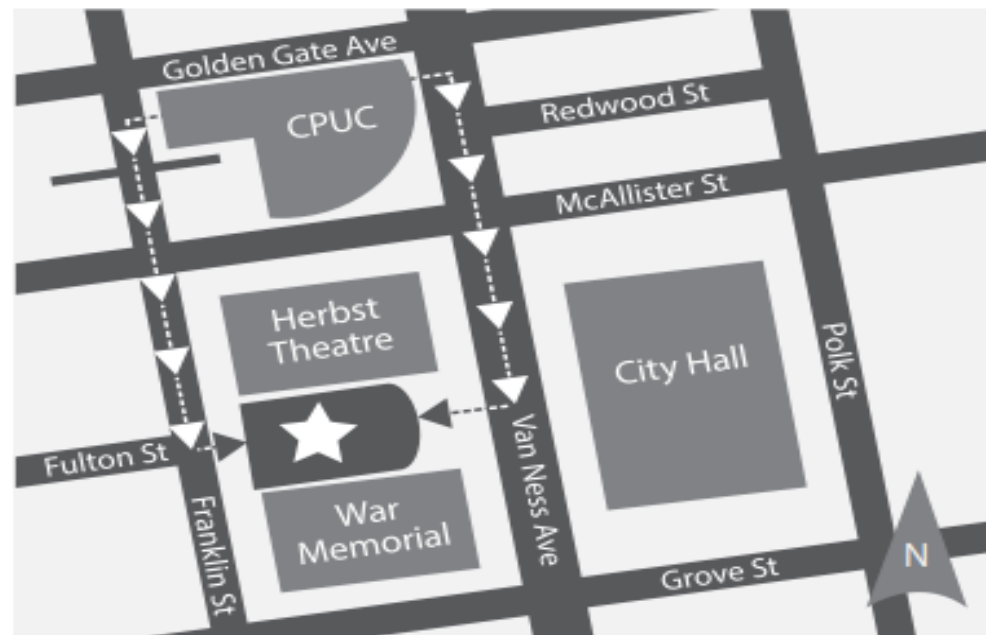
Evacuation Procedure

In the event of an emergency evacuation, please calmly proceed out the nearest exit.

Our assembly point is the park between Herbst Theater and War Memorial Theater

San Francisco Evacuation site:

The Garden Plaza Area Between Herbst Theater and the War Memorial Opera House Buildings





Remote Access

- Please place yourself on mute, and remain on mute unless you are asking a question
- **To mute / unmute press *6**
- ***PLEASE DO NOT PUT YOUR LINE ON HOLD!***

To join by phone:

Teleconference number: **866-811-4174**

Participant code: **4390072#**

Join WebEx meeting

Meeting number: 748 887 805

Meeting password: !Energy1





Purpose of Workshop

- Address issues in scope of Track 2
- Consider and discuss party proposals in Track 1 related to flexibility
- Discuss staff and party proposals for modifying existing flexible RA requirements
- Consider analysis of operational needs for flexibility





Purpose of Track 2

“The primary focus of Track 2 (anticipated late 2016 decision) is to adopt a durable flexible capacity requirement program.

In D.14-06-050, the Commission anticipated the evolution of the FCR program; the Track 2 Decision will potentially be the first major step in that process of evolution.”





Purpose of Track 2 cont...

- “To provide market certainty, we must strive to limit the frequency of substantial changes to the FCR program and product design.”
- “We intend the definition of the flexible capacity product(s) and process for setting FCRs to remain constant beginning with RA compliance year 2018. Therefore, parties are encouraged to take a long view in making proposals”





Fundamental Questions

1. What reliability need(s) must FCRs be designed to meet?
 - a) Has our understanding changed since 2014?
2. What definition of flexible capacity product(s) should be adopted to meet this need or needs?
3. How should annual & monthly FCR requirements be set to meet needs?
4. What, if any, related changes to the RA program should be made to best meet the reliability needs?





Presentation of Staff Analysis

Simone Brant, Energy Division

Current Requirements

- Flex Categories
- Number of Starts

Category 1

- Is it working as intended?
- What improvements are needed?

Potential Alternatives – minor and major adjustments





Calculation of Flexible Requirements

- Total requirement based on largest 3-hr ramp of the month plus 3.5% of peak load
- Category 1 (Base): based on largest secondary net load ramp
 - In flex study based on maximum am and pm ramp
- Category 2 (Peak): Difference between 95% of the max 3-hr net load ramp and largest 3-hr secondary ramp
- Category 3 (Super Peak): 5% of max 3-hr net load ramp





Current Flexible Requirements

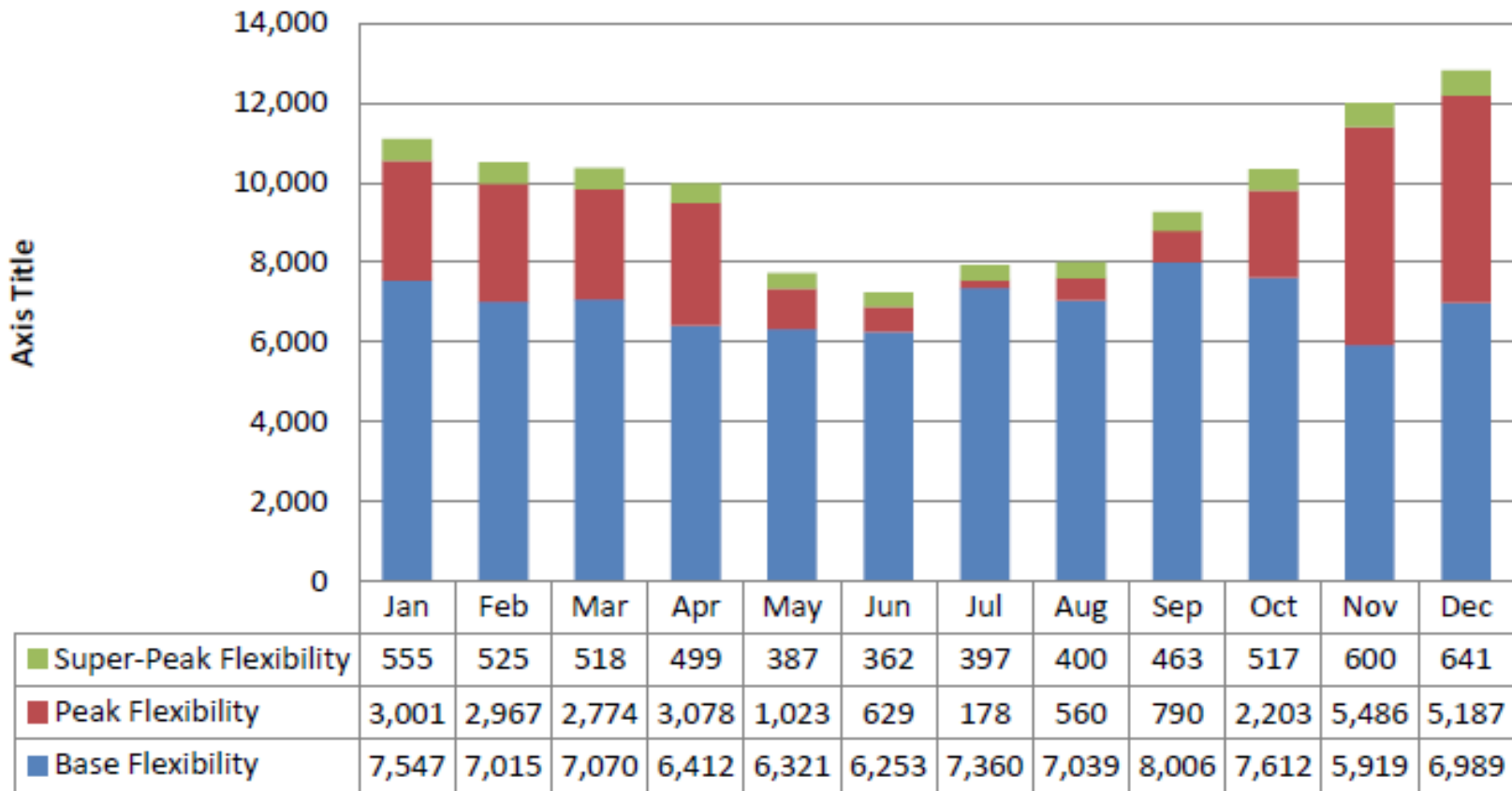
	Category 1	Category 2	Category 3
Must-offer obligation	17 Hours	5 Hours	5 Hours
	5 AM- 10 PM Daily For the whole year	12 PM to 5 PM for May – September	12 PM to 5 PM for May – September
	5 AM- 10 PM Daily For the whole year	3 PM- 8 PM for January- April and October-December	3 PM- 8 PM for January- April and October-December
	Daily	Daily	Non-holiday weekdays
Energy limitation	At least 6 Hours	At least 3 Hours	At least 3 Hours
Starts	The minimum of two starts per day or the number of starts feasible with minimum up and down time	At least one start per day	Minimum 5 starts a month
Percentage of LSE portfolio of flexible resources	At least 87 % for May – September	Up to 13% for categories 2 and 3 combined	Up to 5%
	At least 63 % for January- April and October-December	Up to 37% for categories 2 and 3 combined	Up to 5%





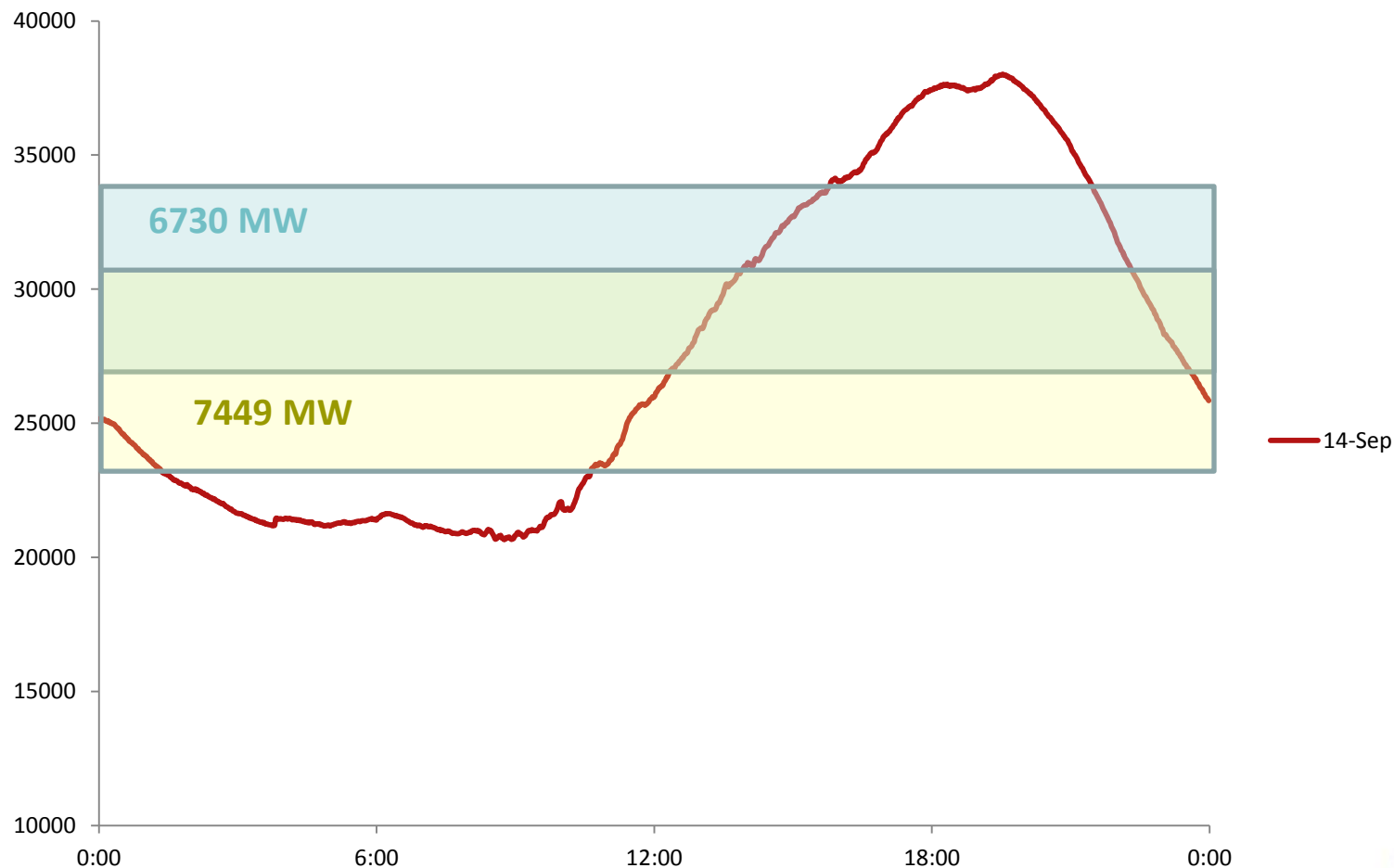
2016 Flexible Need Calculation

Total Flexible Capacity MW Need by Category



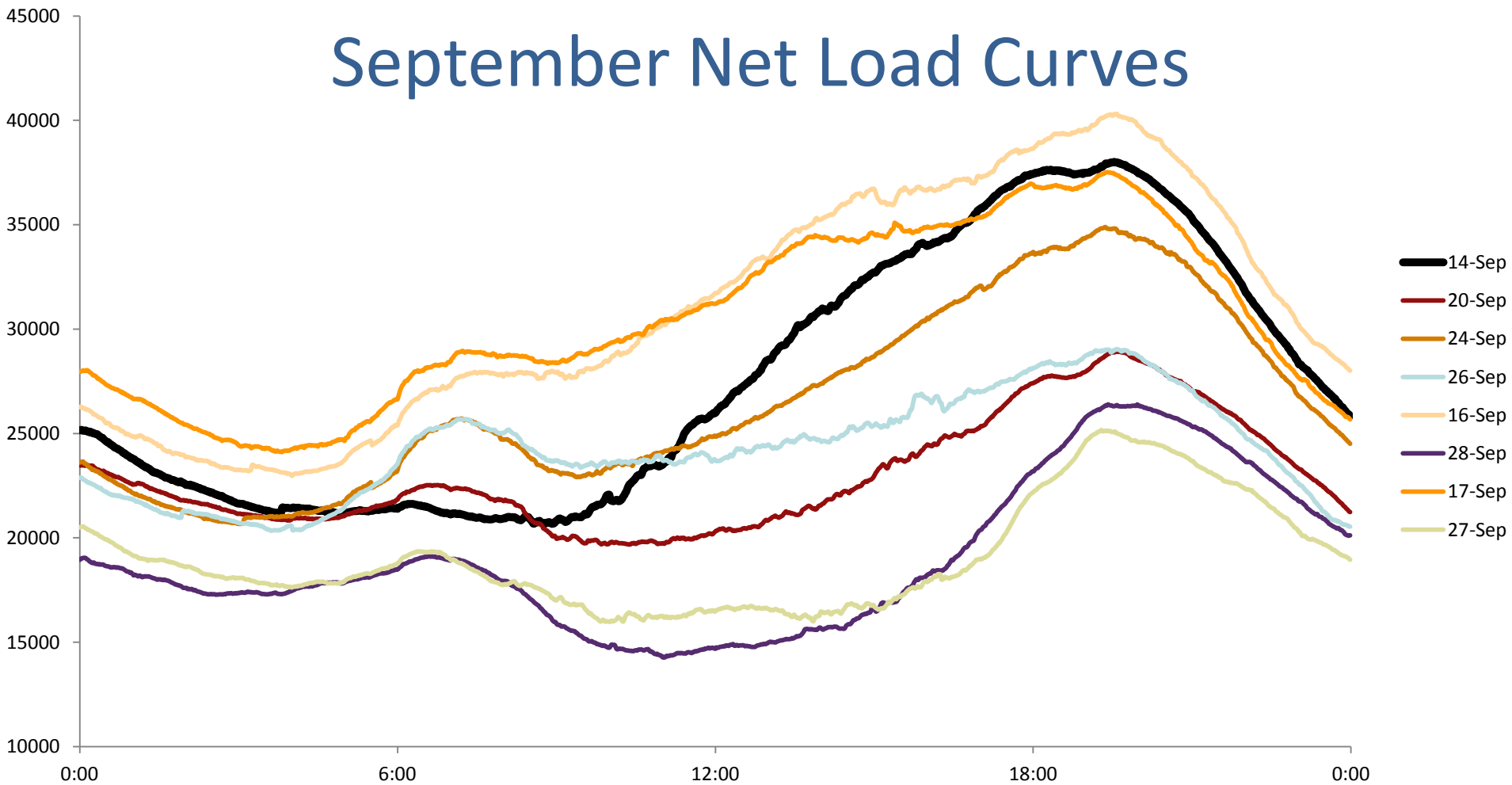


September 2016 Requirement





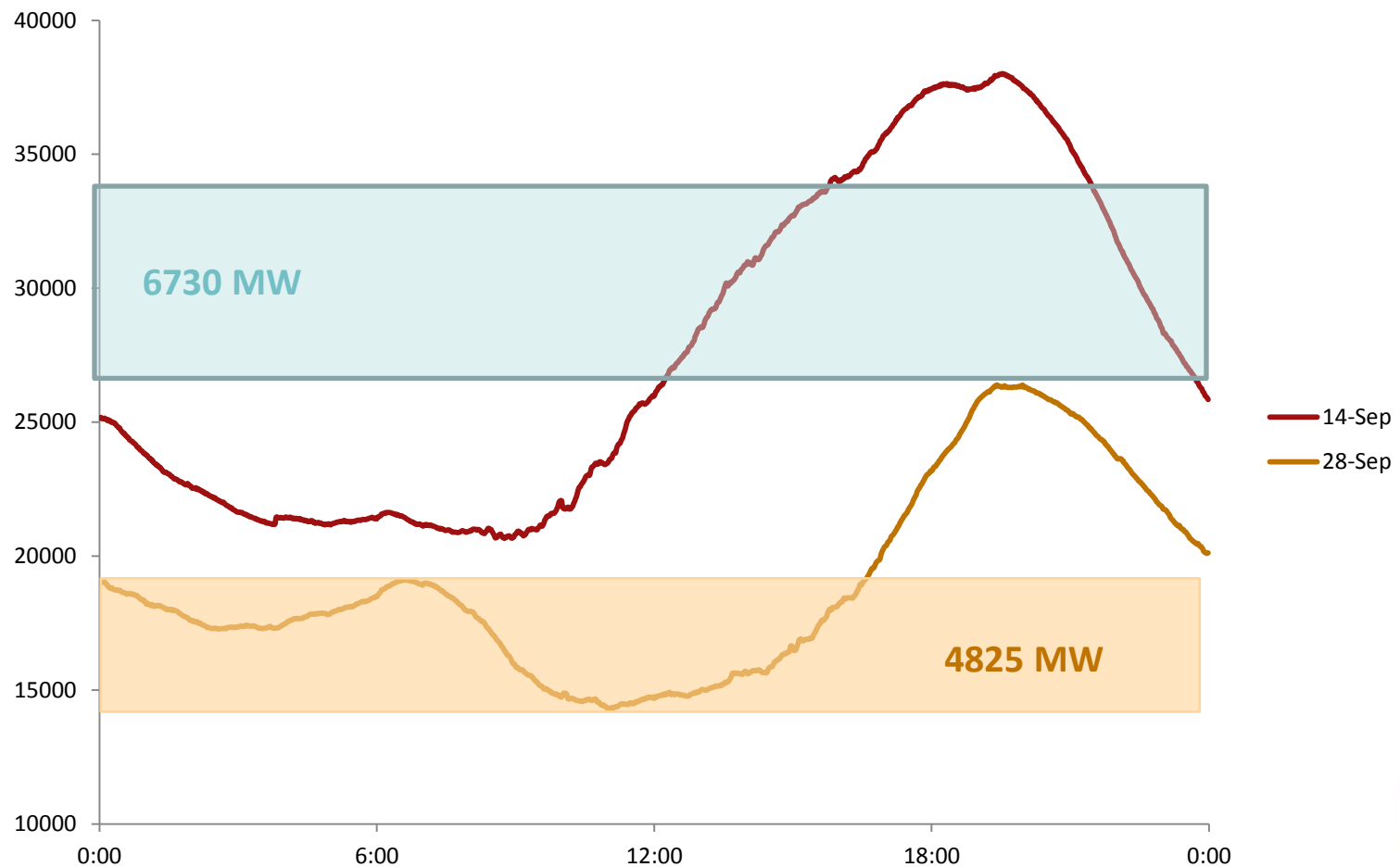
September Net Load Curves





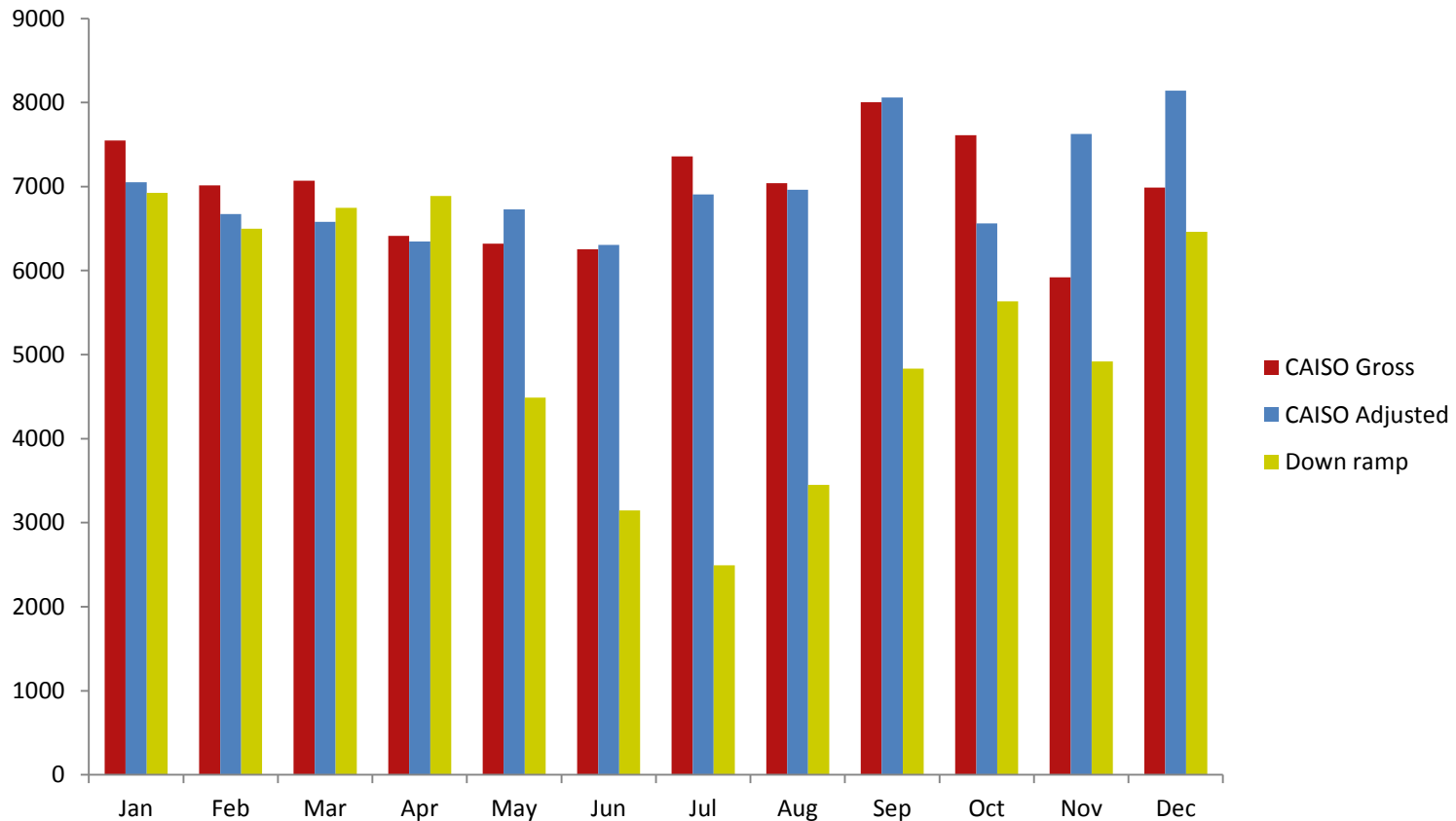
September Alternative

Day with largest downward ramp vs. largest secondary ramp





Current Category 1 vs. Down Ramp Alternative

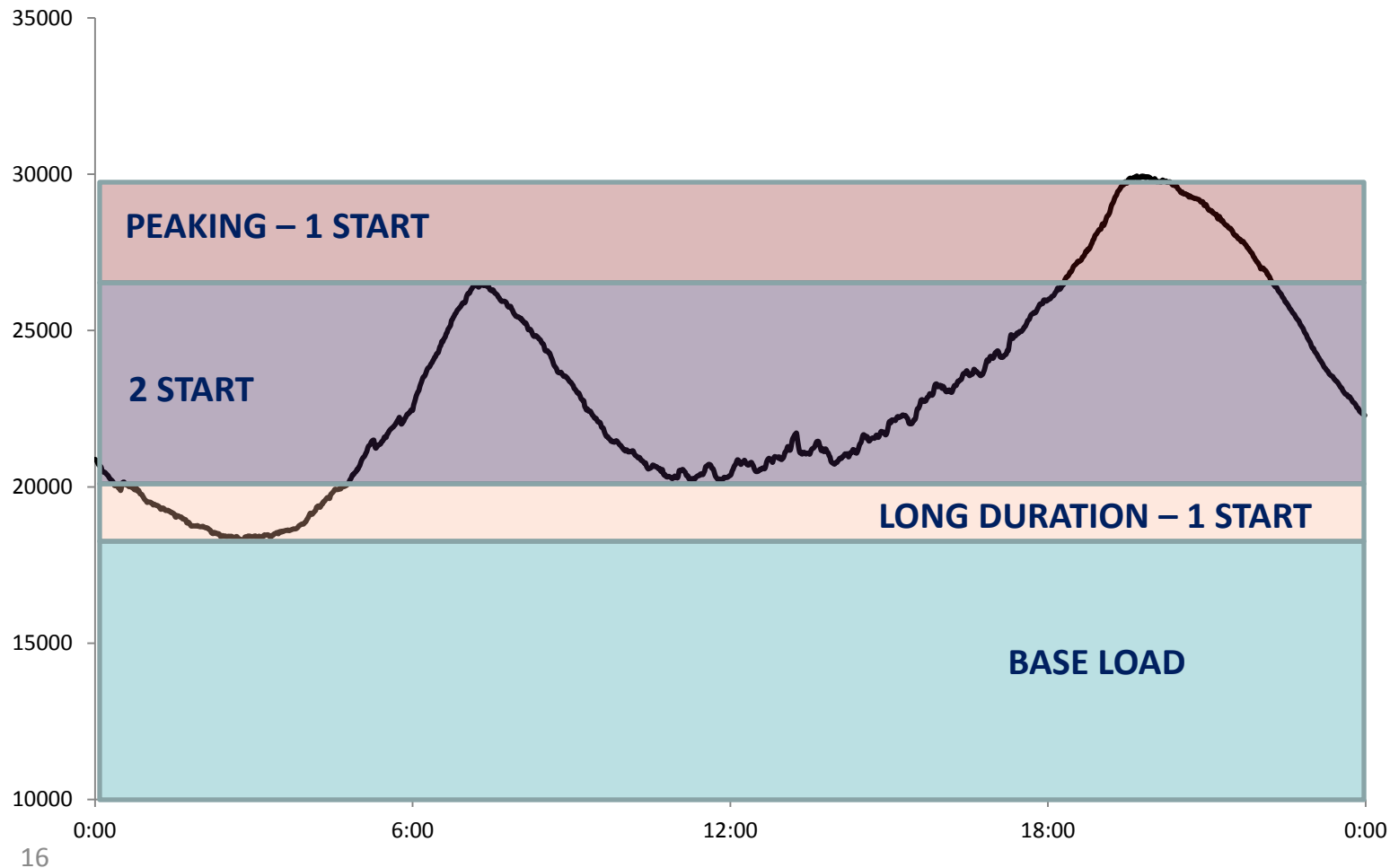


*Results in similar requirements for most months
(except summer which is significantly lower)*



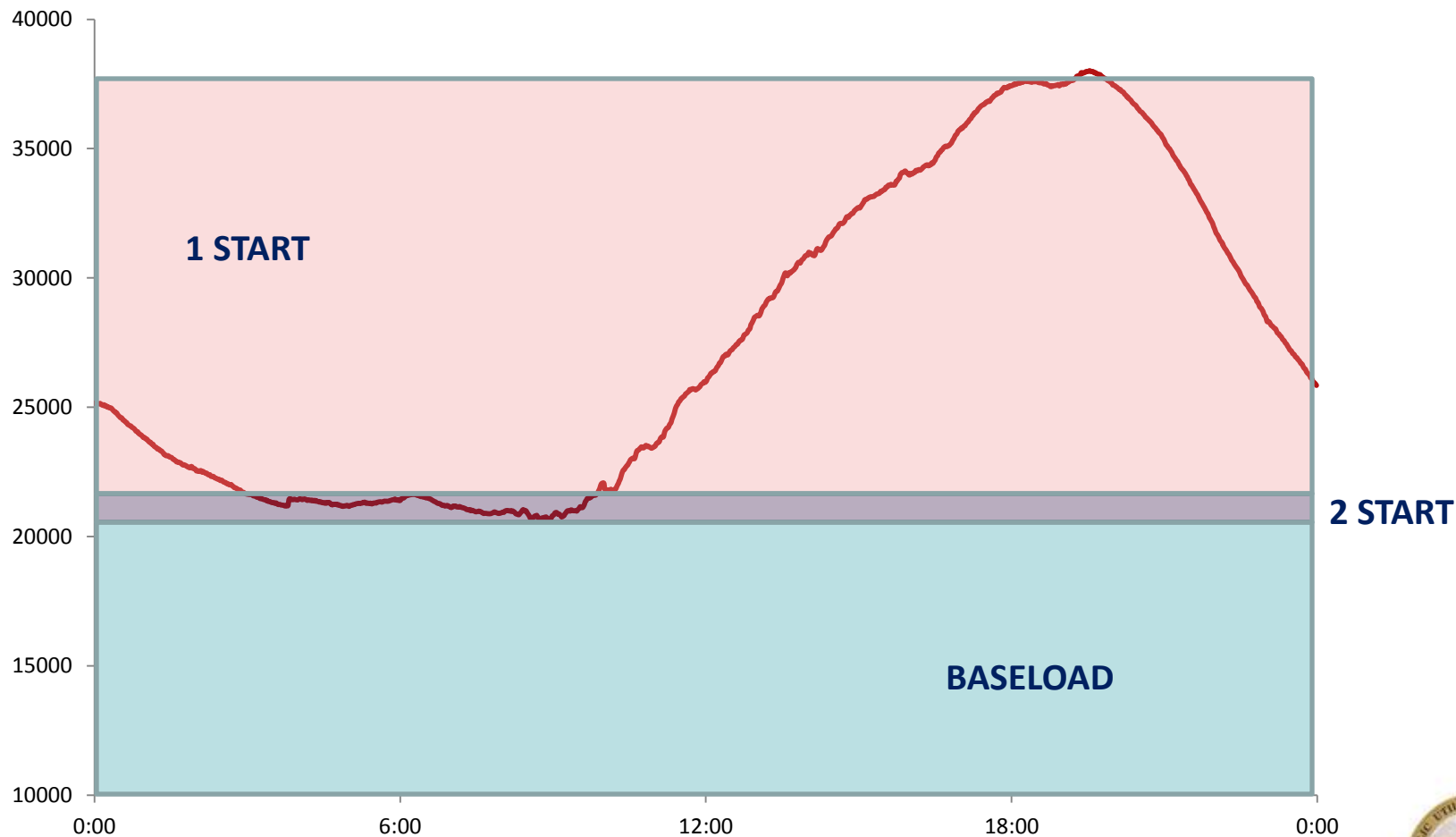


Alternate Approach – Spring Day



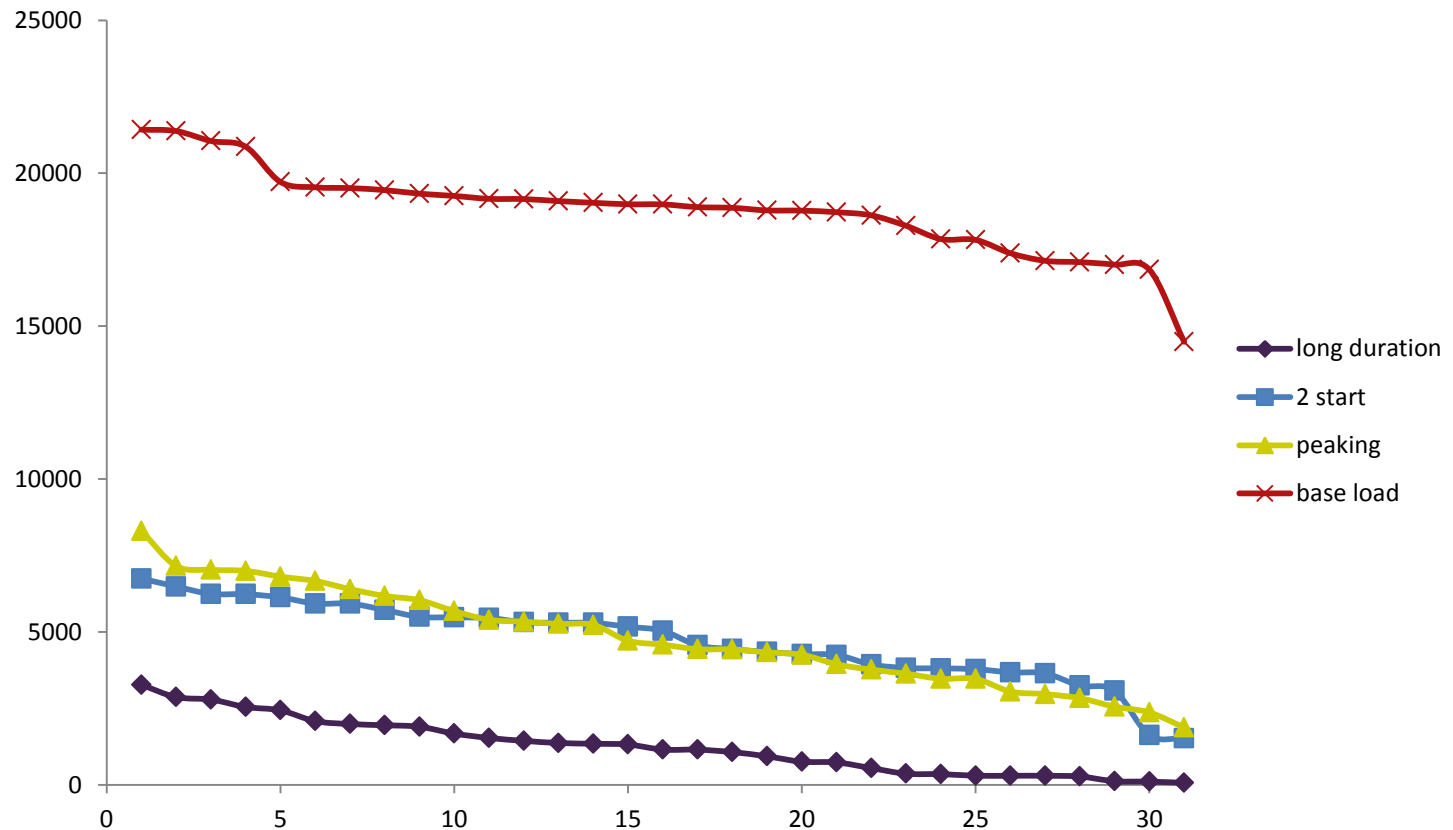


Summer Day





Daily Distribution - March

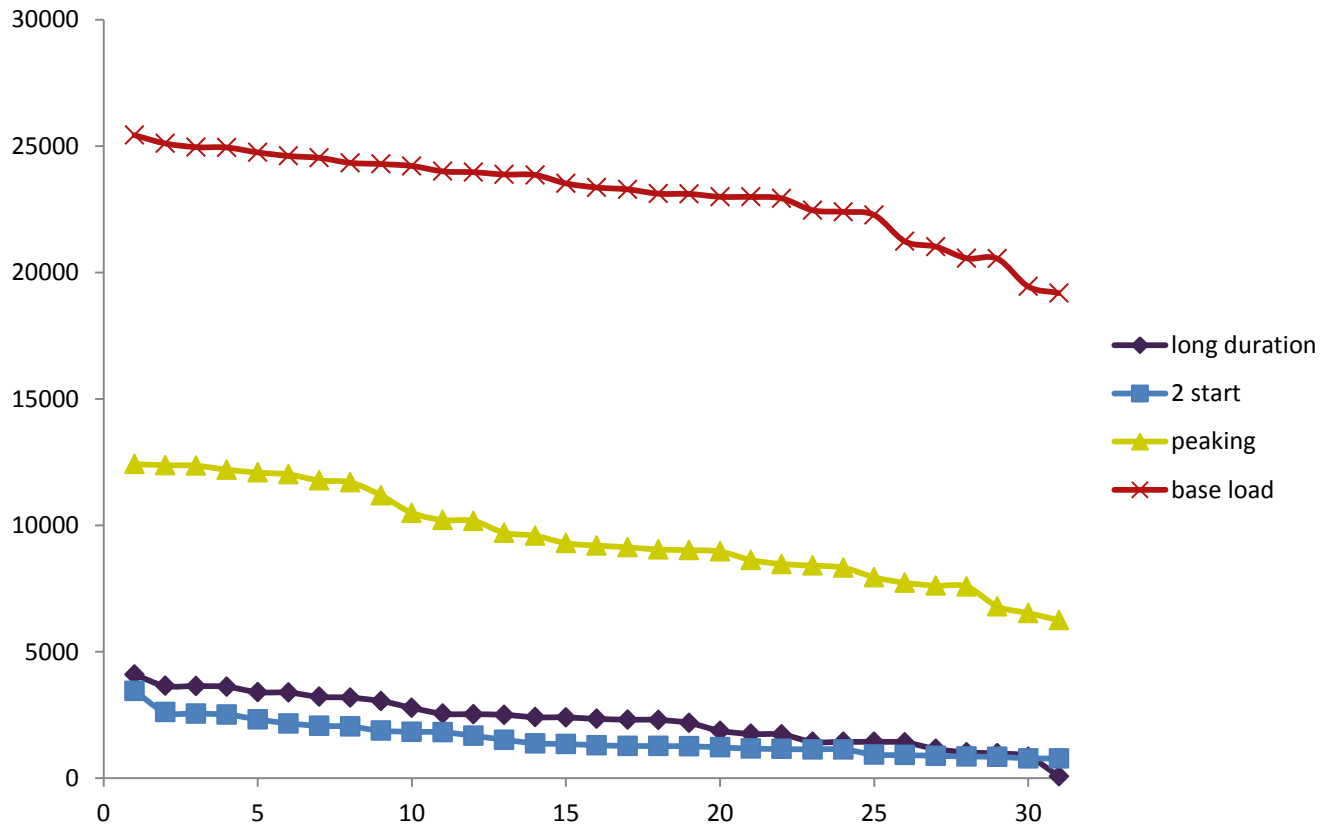


* Values are sorted largest to smallest so do not represent one day





Daily Distribution - September

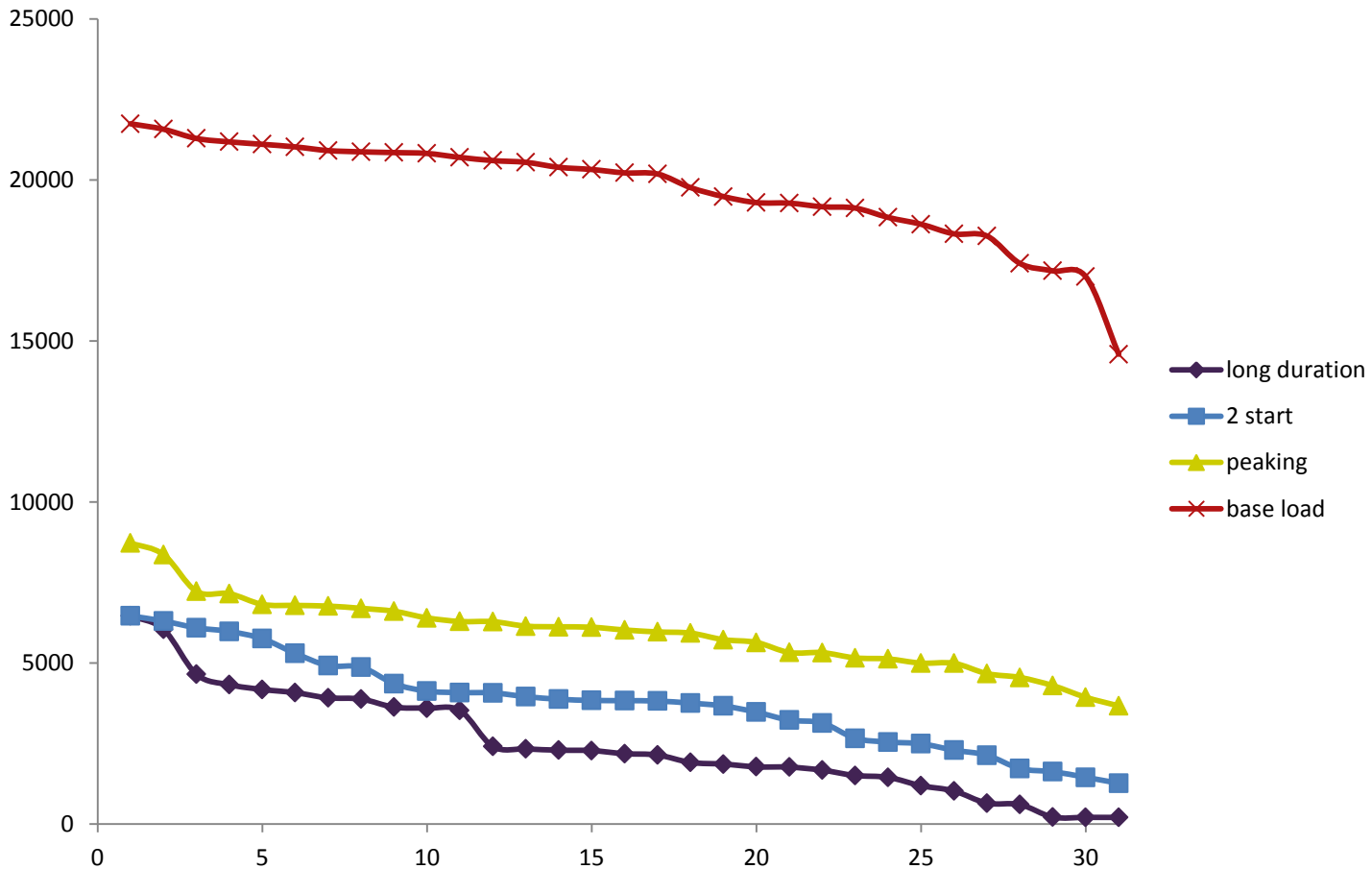


- Peaking, long duration and 2 start may not be separate categories in summer months



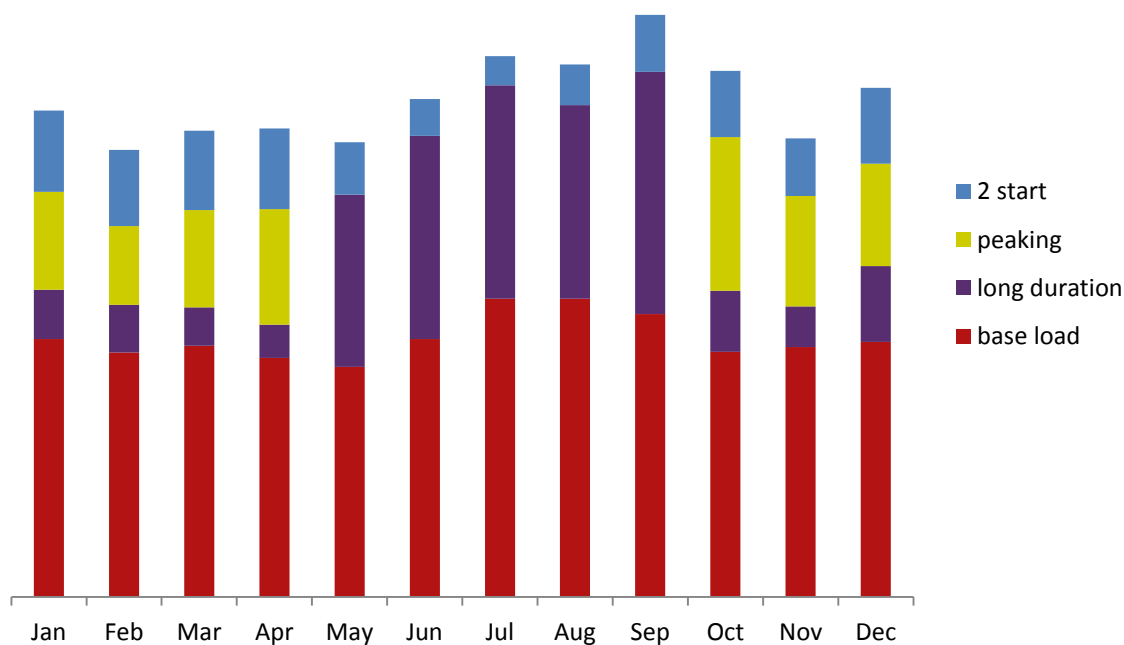


Daily Distribution - December





Illustrative System/Flexible Calculated Categories



- Not scaled to PRM
- Worst Case Scenario for Need – have to examine need on any single day and how to cap at total system need
- 2 start requirement may be unnecessary in summer
- Additional analysis needed to determine bidding requirements





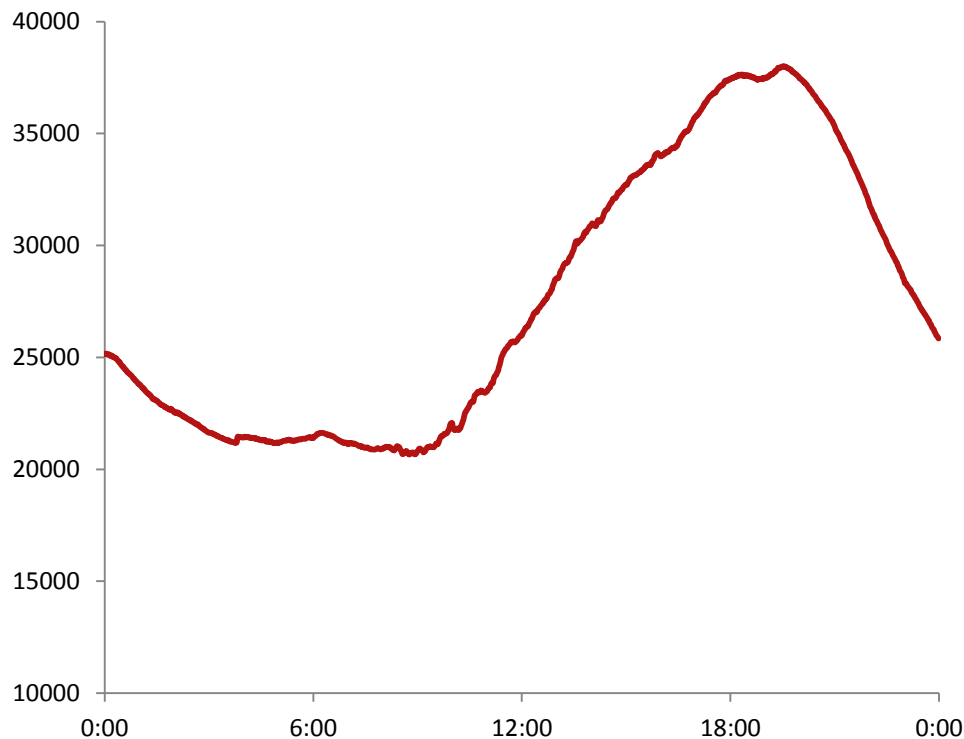
Must-Offer Obligations based on alternative capacity categories?

Capacity Category	Must Offer Obligation
Baseload	Bid or self-schedule (same as current generic requirement) ?
Long Duration	Bid or self-schedule ?
Peaking	5? hour must offer ?
2 start	17? Hour must offer?





Options for Durable Flexible Product



Alternative 1: Minor Adjustments –

Revise methodology for Category 1 so that secondary peak must be on a day with 2 ramps of a certain size

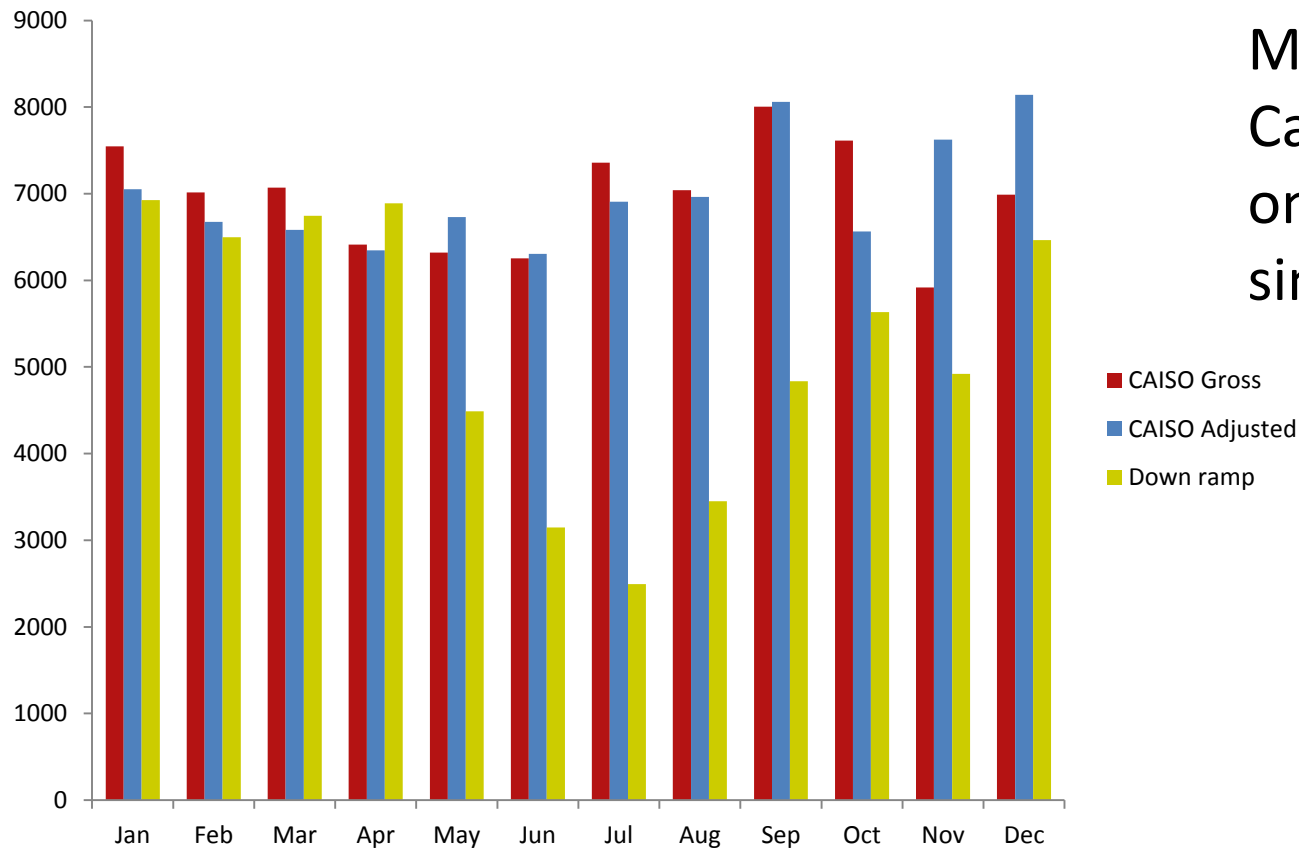
- No 2 start requirement May - September





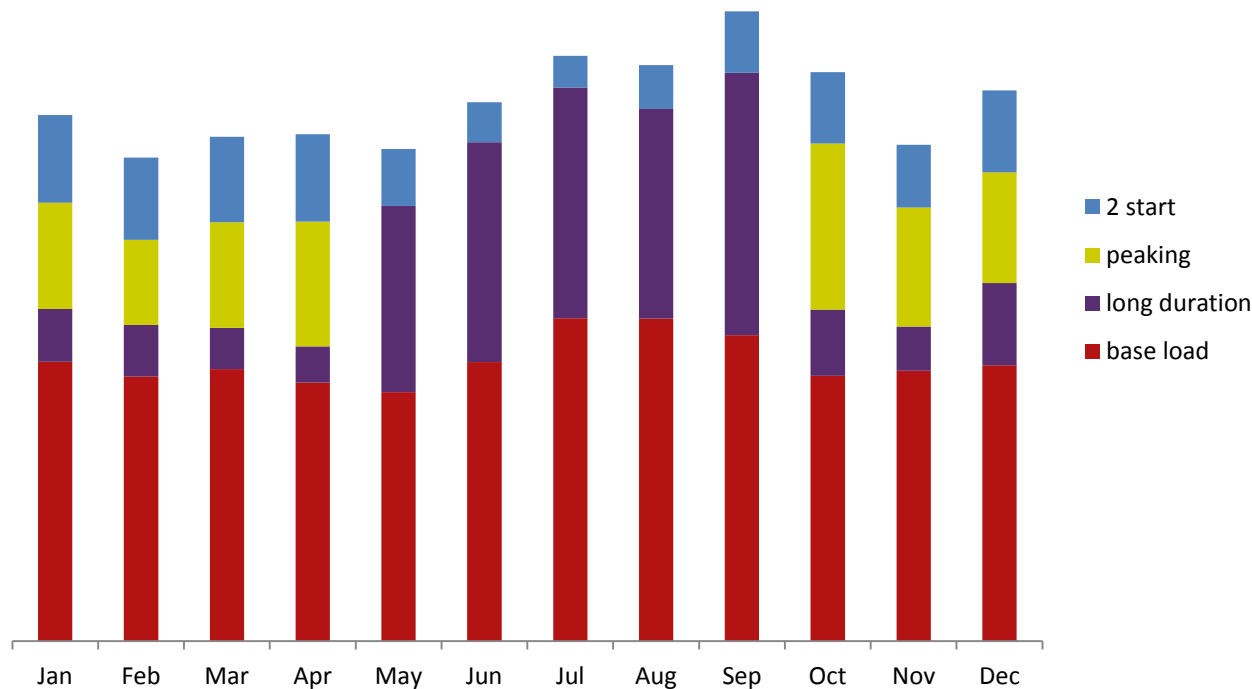
Options for Durable Flexible Product

Alternative 2:
Medium Change -
Category 1 based
on down ramp or
similar





Options for Durable Flexible Product



Alternative 3: Major Redo of System and Flexible RA based on need for specific resource types





Questions and Discussion

- Reaction from parties on options & alternative methodologies presented for Category 1?
- Which are worth pursuing in Track 2 in 2016/ 2017?

Next Steps: further analysis required to develop alternatives, additional workshops and Staff/ party proposals



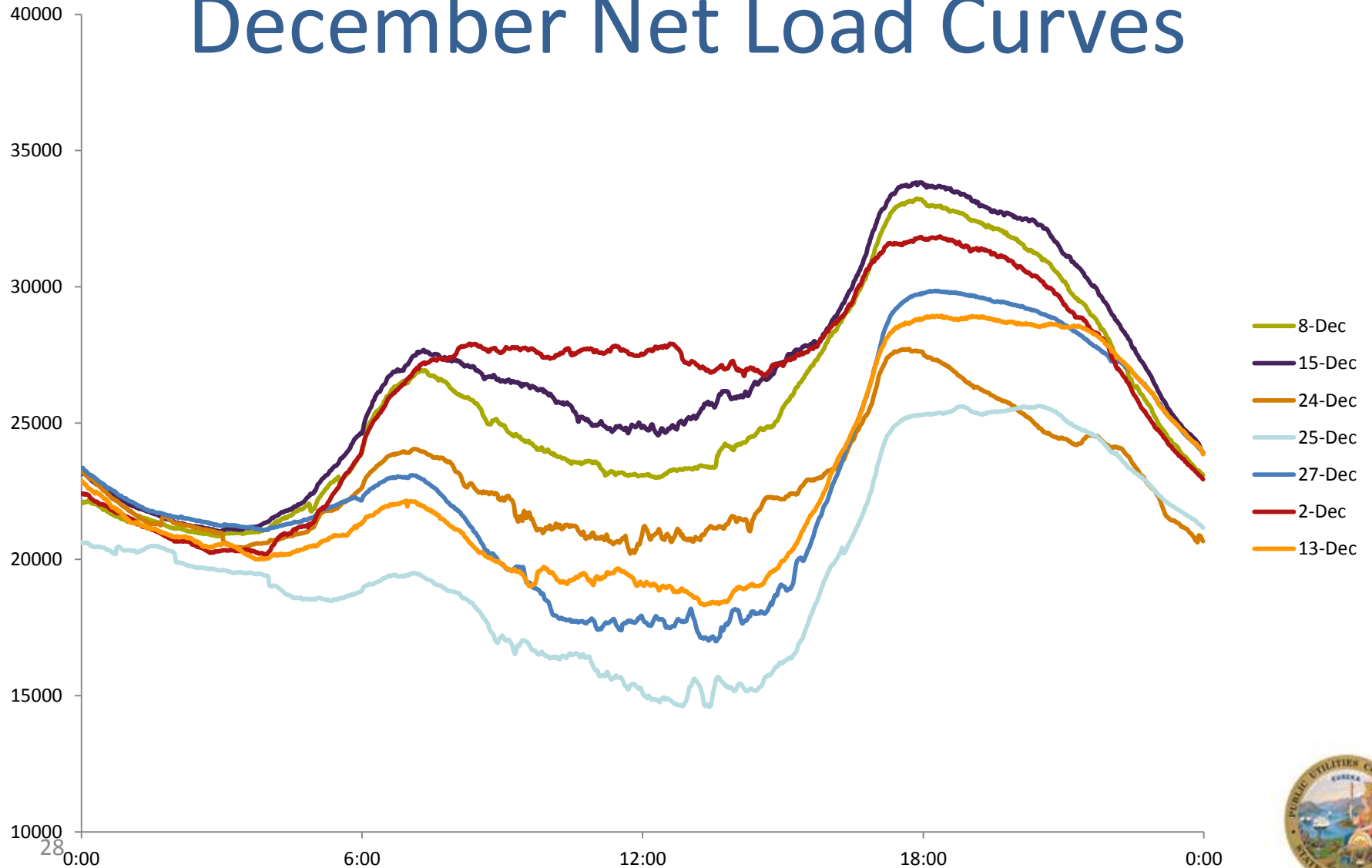
Thank you!
For Additional Information:

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415-703-5239





December Net Load Curves





Appendix Slides





March Net Load Curves

